

THE CHROMOSOME NUMBER OF  
OBOLARIA VIRGINICA L. (GENTIANACEAE)

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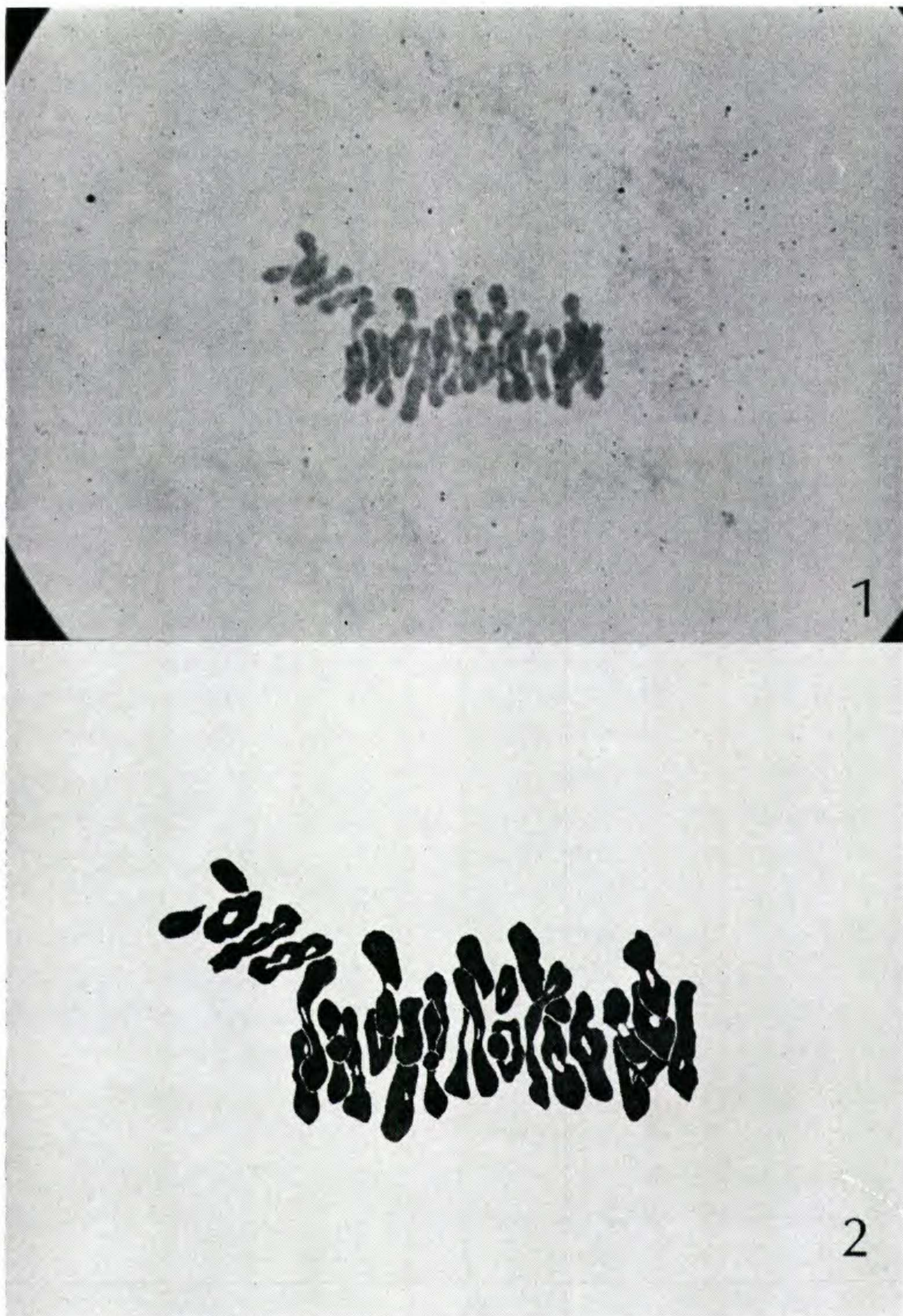
Investigations of chromosomes are necessary to the further classification and clarification of the natural relationships between species.

*Obolaria virginica* L. (Gentianaceae), which is monotypic, is common in rich mesic woods throughout the piedmont and mountain area in southeastern United States. The chromosome number of *O. virginica* ( $n=28$ ) is here described for the first time.

*O. virginica* was collected on the campus of the University of North Carolina at Chapel Hill (coll. *K. Kondo* 562, March 10, 1970). The flower buds were fixed in Carnoy's solution: 6 : 3 : 1 of ethanol, chloroform and glacial acetic acid. Observations were made by the aceto-carmin squash method.

The meiotic divisions in the PMC's were very regular and 28 bivalent chromosomes at metaphase I of meiosis were clearly observed (Figs. 1 and 2). The bivalents were normal and consisted of two elements of equal size. Their forms were ring-shaped, conjugated at both ends, and stick-shaped, conjugated end to end. However, the author infers that the basic chromosome number of *Obolaria* is 7, and *O. virginica* is the octoploid which is constant.

Chromosome relationships of members of the Gentianaceae have been well studied by Rork (1949), Favarger (1952), and Wada (1955, 1956, and 1960). Members of the Gentianaceae show heteroploidy, and their basic chromosome numbers are 5, 6, 7, 8, 9, 11, and 13. The same basic chromosome number as *O. virginica* ( $X=7$ ) occurs in several genera of this family, such as *Centaureum*, *Gentiana*, *Sabatia*, and *Swertia*. According to Rork's report (1949), about 58 per cent of the species of the Gentianaceae investigated to date are polyploid. Perennial species show no greater tendency toward polyploidy than do subperennial



Figs. 1 and 2. Chromosomes in pollen mother-cell of *Obolaria virginica* L. :  $n=28$  (Fig. 1.  $\times$  ca. 950; Fig. 2.  $\times$  ca. 1450).

species; the subperennials have 32.8 per cent higher average chromosome number than the perennials.

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LITERATURE CITED

- FAVARGER, C. 1952. Contribution à l'étude caryologique et biologique des Gentianacées. *Berichte Schweiz. Bot. Ges.* **62**: 244-257.
- RORK, C. L. 1949. Cytological studies in the Gentianaceae. *Am. Journ. Bot.* **36**: 687-701.
- WADA, Z. 1955. Cytological studies of four species of *Swertia* and one species of *Halenia*. *Jap. Journ. Genet.* **30**: 191.
- . 1956. Cytological studies in Gentianaceae. *Jap. Journ. Genet.* **31**: 315.
- . 1960. Chromosome numbers in Gentianaceae. *Chromosome Information Service* **7**: 28-30.